

REMARKS

Claims 1 and 14 have been amended. Support for the amendments to claims 1 and 14 may be found throughout the specification, such as at paragraphs [0064] and [0071]. Claims 8 and 12 have been amended to correct informalities contained therein. No new matter has been added. Claim 16 has been cancelled without disclaimer of the subject matter contained therein or prejudice to the Applicants' right to file any continuing applications directed thereto. Upon entry of this amendment, claims 1-15 remain pending. Reconsideration and allowance of claims 1-15 are respectfully requested.

In the Office Action dated September 23, 2005, claims 1, 2, 4-10, 12-14, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Williams (U.S. Patent No. 6,353,271) in view of Getchel et al. (U.S. Patent No. 6,019,164). Applicants respectfully traverse this rejection.

Independent claim 1 recites a lithographic apparatus that includes, *inter alia*, a chuck and a frame that supports the chuck with respect to other parts of the lithographic apparatus, the chuck being thermally isolated from at least the frame, wherein the frame is provided with at least one mirror on a side and the apparatus is provided with an interferometric position determination system for accurately positioning the patterning device or substrate with the aid of the mirror. The combination of Williams and Getchel et al. does not disclose or suggest all of the features of claim 1.

Williams discloses wafer and reticle stages for EUV scanning lithography. (Williams at col. 4, lns. 20-21.) As conceded by the Examiner, Williams does not expressly disclose a chuck being thermally isolated from a frame. (Office Action at p. 2.)

Getchel et al. discloses various embodiments of a chuck for holding flat workpieces during the testing and evaluation of such workpieces. (Getchel et al. at col. 1, lns. 11-44.) It is an object of the invention disclosed in Getchel et al. "to provide a workpiece chuck which is held together in a stiff but mechanically non-constrained fashion such that thermal and mechanical stresses are reduced." (Getchel et al. at col. 3, lns. 5-8.) All of the embodiments of Getchel et al. disclose a chuck that includes an upper assembly and a lower assembly. (Getchel et al. at col. 3, lns. 38-45.) The workpiece or wafer is mounted to the upper assembly, and the lower assembly can be mounted to a base, such as the support structure of a host machine. (Getchel et al. at col. 3, lns. 40-45.) The upper and lower assemblies are attached to one another with "non-constraining attachment means, such as vacuum or springs or spring washers such as belleville washers which are not clamped with sufficient force to

completely constrain the chuck layers against radial movement relative to each other.” (Getchel et al. at col. 3, lns. 54-58.) Applicants respectfully submit that none of the embodiments of Getchel et al. disclose or suggest a frame that supports the chuck that is provided with at least one mirror on a side. Applicants further submit that one of ordinary skill in the art would not consider putting mirrors on the lower assembly of Getchel et al. and using those mirrors for accurately positioning the object being supported by the chuck because the upper assembly, and hence object, are not constrained relative to the lower assembly. As a result, any measurements taken such a hypothetical mirror would only give a position of the lower assembly and not the object itself.

Moreover, Applicants respectfully submit that one of ordinary skill in the art would not combine the chuck of Getchel et al., which is designed for testing equipment, in a lithographic apparatus. This is because, as Williams teaches, the stages in a lithographic apparatus should provide for precise positioning of the chuck and object that is supported by the chuck. Putting the chuck of Getchel et al. would simply not allow the apparatus of Williams to be used for its intended purpose. For all of these reasons, a *prima facie* case of obviousness has not been established by the Examiner.

Accordingly, Applicants respectfully submits that claim 1 and claims 2-13 that depend therefrom are patentable over Williams in view of Getchel et al., and respectfully request that the rejection to claims 1, 2, and 4-13 be withdrawn.

Moreover, Applicants respectfully submit that the additional features that are included in claims 5-8, and 13 have not even been addressed by the Examiner. As stated in the MPEP, “[a] plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group.” (MPEP § 707.07(d).)

Dependent claim 5 depends from claim 1 and adds “wherein at least one of a part of a surface of said chuck directed towards said frame and a part of a surface of said frame directed towards said chuck has a low emissivity.” The Examiner has not shown how claim 5 is obvious over Williams in view of Getchel et al. Neither Williams nor Getchel et al. discloses or suggests the emissivity of any surface, let alone a part of a surface of a chuck or a frame, as claimed by claim 5. Accordingly, Applicants respectfully submit that claim 5 is patentable over Williams in view of Getchel et al. for this additional reason.

Dependent claim 6 depends from claim 5 and adds “wherein said at least one of a part of a surface of said chuck directed towards said frame and a part of a surface of said frame directed towards said chuck is covered with a low emissivity coating.” The Examiner has not

shown how claim 6 is obvious over Williams in view of Getchel et al. Neither Williams nor Getchel et al. discloses or suggests that any surface is covered with a low emissivity coating. Accordingly, Applicants respectfully submit that claim 6 is patentable over Williams in view of Getchel et al. for this additional reason.

Dependent claim 7 depends from claim 6 and adds “wherein said coating contains chrome or silver.” The Examiner has not shown how claim 7 is obvious over Williams in view of Getchel et al. Neither Williams nor Getchel et al. discloses or suggests that any surface is covered with a low emissivity coating that contains chrome or silver. Accordingly, Applicants respectfully submit that claim 7 is patentable over Williams in view of Getchel et al. for this additional reason.

Dependent claim 8 depends from claim 6 and adds “wherein said low emissivity coating has an emissivity below 0.1.” The Examiner has not shown how claim 8 is obvious over Williams in view of Getchel et al. Neither Williams nor Getchel et al. discloses or suggests that any surface is covered with a low emissivity coating having an emissivity below 0.1. Accordingly, Applicants respectfully submit that claim 8 is patentable over Williams in view of Getchel et al. for this additional reason.

Dependent claim 13 depends from claim 12 and adds “said heat transfer device comprises a gas supply system to supply a backfill gas between said chuck and said object, said heat transfer device including a gas outlet positioned adjacent an object support surface of said chuck.” The Examiner has not shown how claim 13 is obvious over Williams in view of Getchel et al. Neither Williams nor Getchel et al. discloses a heat transfer device that includes a gas supply system to supply a backfill gas between the chuck and the object. Accordingly, Applicants respectfully submit that claim 13 is patentable over Williams in view of Getchel et al. for this additional reason.

Independent claim 14 recites a method of manufacturing a device that includes, *inter alia*, “supporting one of the substrate and the patterning device with a chuck; supporting the chuck with respect to other parts of the lithographic apparatus with a frame, said frame being provided with at least one mirror on a side; thermally isolating the chuck from the frame; accurately positioning the patterning device or the substrate with an interferometric position determination system and the mirror.” The combination of Williams and Getchel et al. does not disclose or suggest all of the features of claim 14.

Williams and Getchel et al. are discussed above. As discussed at length above, the chuck of Getchel et al. would not be used to support a substrate or a patterning device as part

of a method of manufacturing a device. This is because using the chuck of Getchel et al. in the apparatus of Williams would not allow the accurate positioning of the patterning device or the substrate with an interferometric position determination system and mirror for the reasons discussed above.

Accordingly, Applicants respectfully submit that claim 14 is patentable over Williams in view of Getchel et al. and respectfully request that the rejection to claim 14 be withdrawn.

Independent claim 16 has been cancelled, thereby mooting the rejection to claim 16.

In the Office Action, claim 15 was rejected as being anticipated by Orihira et al. (U.S. Patent No. 5,685,363). Applicants respectfully traverse this rejection.

Claim 15 recites a chuck for use in a lithographic device that includes a first side having a support surface constructed to support an object, a second side having a low emissivity coating to thermally isolate the chuck, an enclosed chamber positioned within the chuck, and a phase transiting material positioned within the enclosed chamber. Orihira et al. does not disclose or suggest all of the features of claim 15.

Orihira et al. discloses a substrate holding device that includes a base (4) that supports a substrate (2). (Orihira et al. at col. 3, lns. 6-8.) Rubber elastic material (22) is disposed on a sheet (12), and the substrate (2) is mounted to the base (4) with the rubber elastic material (22) and sheet (12) placed in between the substrate (2) and the base (4). (Orihira et al. at col. 3, lns. 6-9.) Thus, the sheet (12) is supported by the same side of the base (4) that supports the substrate (2). As would be understood by one of ordinary skill in the art, when looking at the substrate holding device of Orihira et al. – as a whole – the “first side” of the substrate holding device would be the top side of the rubber elastic material (22) the “second side” of the substrate holding device of Orihira et al. would be the bottom side of the base (4). One of ordinary skill in the art would not look at a single individual piece of the holding device that is embedded in the middle of the device and consider one of its sides to be a side of the device as a whole.

Accordingly, Applicants respectfully submit that claim 15 is patentable over Orihira et al. and respectfully request that the rejection to claim 15 be withdrawn.

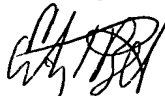
Applicants acknowledge with appreciation that claims 3 and 11 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. However, in view of this Amendment and remarks presented above, Applicants respectfully submit that all of the pending claims are allowable.

All rejections and objections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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